REMARKS/ARGUMENTS

Applicants thank the Examiner for the careful examination given to the present application. The application has been reviewed in light of the Office action, and it is respectfully submitted that the application as amended, is patentable over the art of record. Reconsideration of the application as amended is respectfully requested.

Claims 1, 3, 7, 9-11, 25 and 27-36 have been amended by the present amendment. Claims 2, 8, 12-16 and 26 were previously canceled and claims 17-24 were previously withdrawn by the Examiner from consideration. Claims 4-6 stand as originally filed. Accordingly, claims 1, 3-7, 9-11, 17-25 and 27-36 remain pending in this application.

Claims 1, 3-7, 9-11, 25 and 27-35 are rejected by the Examiner under 35 U.S.C. § 103(a) as being allegedly unpatentable over Applicant's admitted prior art (AAPA) in view of a book entitled "Die Castings Their Design, Composition, Application Specification, Testing and Finishing" by Herbert Chase (hereinafter "Chase"). The Examiner further rejects claims 16 and 36 under 35 U.S.C. § 103(a) as being allegedly unpatentable over Chase or Chase in view of AAPA in view of Japanese reference number 11-093770 to Osawa. Applicant's respectfully traverse these rejections.

Each of the independent claims, and claims depending therefrom, contain limitations that are neither taught nor

suggested by Chase or the Applicants admitted prior art. For example, independent claims 1, 7 and 25 each recite an as-cast spark-plug blind opening that is formed without the use of a through core pin and further require the blind opening to be entirely closed at one end by a thin web. The remaining independent claims (i.e., claims 3, 9 and 27) each recite an as-cast blind exhaust port and an as-cast blind intake port that are each formed without the use of a through core pin and are each entirely closed at one end by a thin web. Forming an as-cast spark plug blind opening, an as-cast blind exhaust port and an as-cast blind intake port without the use of a through core pin wherein one end of the opening/port is entirely closed by a thin web avoids problems encountered when using a through core pin in a mold as discussed in paragraph [0037] of the Applicants' disclosure.

With respect to independent claims 1, 7 and 25, the Applicants' admitted prior art fails to teach or suggest an as-cast spark-plug blind opening that is formed without the use of a through core pin and further fails to tender or suggest a blind opening that is entirely closed at one end by a thin web. In fact, the Applicants admitted prior art teaches casting the cylinder head without any as-cast opening for a spark-plug as shown in FIG. 6. Rather, after forming the as-cast cylinder head, subsequent machining steps are necessary to subsequently form a tapped spark plug aperture to

accommodate the spark plug. Indeed, as set forth in FIG. 10, after forming the as-cast cylinder head, lengthy separate machining steps are necessary to: (1) drill the spark plug hole and (2) perform an additional spark-plug tapping step. Therefore, the Applicants' admitted prior art only discloses subsequent formation of a through spark-plug aperture and does not disclose an as-cast spark-plug blind opening that is entirely closed at one end by a thin web as recited in claims 1,7 and 25.

Chase fails to address the shortcomings of the Applicants' admitted prior art. Chase suggests forming as-cast holes with a through core pin. Indeed, as set forth on page 141, Chase states that it is preferred to support the core pin at both ends with a core that runs clear through the casting unless some more important consideration prevents this practice. See Chase, page 141, lines 2-6. Therefore, Chase suggests forming as-cast holes with a through core pin and teaches away from forming holes without a through core pin. In contrast, claims 1, 7 and 25 each require an as-cast spark plug blind opening to be formed without the use of a through core pin. Moreover, Chase does not teach or suggest an as-cast spark plug blind opening that is entirely closed at one end by a thin web. Rather, Chase states that a small cored hole may include a "thin flash or fin" (see page 143, second full paragraph) that may need to be cleaned out with a

subsequent drill or punch. The thin flash or fin may comprise residual material that is left over from a through core pin. However, Chase does not teach, inherently or otherwise, that the residual material extends to entirely close one end of an as-cast spark plug blind opening. Moreover, as the residual thin flash or fin is an undesirable byproduct of forming the hole, Chase teaches away from providing additional residual material to form a blind opening that is entirely closed at one end by a thin web. Accordingly, as the Applicants admitted prior art in view of Chase fails to teach or suggest each of the limitations of claims 1, 7 and 25, Applicants respectfully request allowance of claims 1, 7 and 25. Applicants further respectfully request allowance of claims 4-6, 10, 11 and 28-36 as depending directly or indirectly from one of allowable claims 1 and 25..

With respect to independent claims 3, 9, and 27, neither Chase nor the Applicants' admitted prior art teach or suggest an as-cast blind exhaust port or an as-cast blind intake port. Moreover, neither Chase nor the Applicants' admitted prior art discloses an as-cast blind exhaust port or an as-cast blind intake port formed without the use of a through core pin. Still further, neither Chase nor the Applicants' admitted prior art teach or suggest an as-cast blind exhaust port that is entirely closed at one end by a first thin web comprising a portion of the cylinder wall or an as-cast blind intake port

that is entirely closed at one end by a second thin web comprising another portion of the cylinder wall. Still further, neither Chase nor the Applicant's admitted prior art discloses removal of the first and second thin webs by the step of machining the cylinder wall to a predetermined tolerance as set forth in claims 3 and 27 or by the step of boring the cylinder wall to a predetermined tolerance as set forth in claim 9. Removing the first and second thin webs during machining or boring the cylinder wall further reduces the steps necessary to finish the cylinder block since separate drilling operations are not necessary to provide through intake and exhaust ports.

In contrast, as described in paragraph [0032], Applicants' admitted prior art discloses an as-cast intake port and an as-cast exhaust port that each comprise through ports. Applicants' admitted prior art does not teach or suggest an as-cast blind exhaust port that is entirely closed at one end by a first thin web nor an as-cast blind intake port that is entirely closed at one end by a second thin web as set forth by claims 3, 9 and 27. It therefore follows that the Applicants' admitted prior art does not disclose removal of the first and second thin webs by the step of machining the cylinder wall to a predetermined tolerance and does not disclose removal of the first and second thin webs by the step of boring the cylinder wall to a predetermined tolerance.

Chase further fails to address the shortcomings of Applicants' admitted prior art. As discussed above, chase suggests forming as-cast holes with a through core pin and teaches away from forming holes without a through core pin. In contrast, claims 3, 9 and 27 each require the as-cast blind intake port and as-cast blind exhaust port to be formed without the use of a through core pin. Moreover, Chase does not teach or suggest an as-cast blind intake port nor an as-cast blind exhaust port that is entirely closed at one end by a thin web. Rather, as set forth above, Chase suggests that a small cored hole may include residual material in the form of a "thin flash or fin" that may need to be cleaned out with a subsequent drill or punch. Chase, however, does not teach, inherently or otherwise, that the residual material extends to entirely close one end of the intake/exhaust ports. Moreover, as the residual thin flash or fin is an undesirable byproduct of forming the hole, Chase teaches away from providing additional residual material to form a blind port that is entirely closed by a thin web. Still further, Chase provides no teaching or suggestion of removing first and second thin webs by the step of machining or boring a cylinder wall to a predetermined tolerance. Applicants therefore respectfully request allowance of claims 3, 9 and 27 as failing to teach or suggest all of the limitations of the claims.

With respect to the rejection of claim 16, it is noted that claim 16 is no longer pending in this application.

In light of the foregoing, it is submitted that the application as amended is in a condition for allowance and notice to that effect is hereby requested. If it is determined that the application is not in a condition for allowance, the Examiner is invited to initiate a telephone interview with the undersigned attorney to expedite prosecution of the application.

If there are any additional fees resulting from this communication, please charge the same to our Deposit Account No. 16-0820, our Order No. 33053.

Respectfully submitted,

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